

REMARKS

After entry of the above amendments, claims 9-15 are pending in this application. Applicants have canceled claims 1-8 and added claims 9-15.

The limitations of previously presented claims 1 and 2 have been incorporated into new claim 9. The limitations of previously presented claim 5 and some limitations of previously presented claim 6 have been incorporated into new claim 12. Other limitations of previously presented claim 6 have been incorporated into new claim 13. Previously presented claims 3, 4, 7 and 8 have been renumbered as new claims 10, 11, 14 and 15, respectively. No new matter has been added.

The drawings and the Abstract were objected to. Appropriate corrections have been made. No new matter has been added.

Rejections Under 35 U.S.C. § 112

Claims 1-8 were rejected under 35 U.S.C. § 112, second paragraph, as indefinite. New claims 9-15 render this rejection moot.

Rejections Under 35 U.S.C. § 103

Claims 1-2 and 5 stand rejected under 35 U.S.C. § 103(a) as unpatentable over Wei U.S. Patent No. 5,778,228 and Shakib U.S. Patent No. 6,321,274. Claims 4 and 6 were rejected under 35 U.S.C. § 103(a) as unpatentable over Wei, Shakib and Krishnamurthy U.S. Patent No. 6,578,113. Claims 3 and 7 stand rejected under 35 U.S.C. § 103(a) as unpatentable over Wei, Shakib and Kumar U.S. Patent No. 7,130,890. Claim 8 was rejected under 35 U.S.C. § 103(a) as unpatentable over

Wei, Shakib, Krishnamurthy and Kumar. Applicants respectfully traverse these rejections.

Applicants' Figure 1 shows an exemplary system architecture. For communication monitoring and optimization purposes, a further web service with a more general functionality, which is referred to as general service 8, is installed at the service provider 10 and in addition to the services 5. This general service 8 can switch one or more service requests to the original service provider, the services 5, and transmit one or more response messages to the remote client or clients 1.

A generic proxy for this additional web service can be installed in a corresponding manner in the remote procedure environment, at client 1, and is referred to as a general proxy 7. In addition, the client 1 can contain an optimization layer 6, as an additional component. This can offer communication and data formatting functions that can be used for communication with the proxies 3, and to this extent can replace functions of the communication layer 4, but also with the addition of optimization capabilities. The optimization layer 6 may itself use the functionality of the communication layer 4, or some other implementation of the required functionality, by means of the general proxy 7.

An exemplary embodiment of the claimed method can allow the following:

1) remote method calls to be suppressed, for example, by using local caches for the response to information requests, 2) remote method calls to be delayed, for example, the method calls that are required in object-oriented environments can be transmitted in order to monitor the lifetime of remote objects, whether by their explicit destruction (so-called destructor calls) or by the periodic determination of objects which are no longer being used (the so-called garbage collection), normally with a

time delay from the client to the procedure environment of the remote object, 3) remote method calls to be grouped, for example in order to reduce the number of resource-intensive connection setting-up processes and to retrospectively deal with the subsequent requests in 1) and 2) when the opportunity arises, 4) the messages that contain the return values of remote method calls to have further information that is relevant for local use added to them, for example in order to cause the deletion of entries which have become invalid in local caches, 5) used transmission protocols or data formats to be used to decide, depending on the propagation time environment, for example, in order to replace a resource-intensive SOAP/HTTP transmission by a more efficient form, if the nature of the connection allows (Internet/LAN, and if present, HTTP proxies and firewalls) and 6) communication to be initiated independently of calls from client applications for management, in particular updating and invalidation of the data in a cache, or piggyback information together with the transmission of call groups and the reverse transmission of responses from the service provider to be requested.

Applicants respectfully submit that the same combination of claimed features is neither disclosed nor suggested by Wei, Shakib or the other cited references, viewed alone or in combination.

Wei teaches an improved method and system for transferring remote procedure calls and responses over a computer network using a generic RPC client stub and a generic RPC server stub to replace all the dedicated RPC stubs normally associated with each client and server application. The generic stubs are customized, upon invocation, to transmit and retrieve information or programs across the network as if they were regular stubs.

In contrast to Wei, Shakib refers to a computer-implemented technique that combines multiple procedure calls into a single request in a client-server system, such as a system using the RPC protocol. Calls that do not require an immediate response are delayed until a call needing a response is generated. At that point, the calls are packaged together and transmitted to the server. Thus, for example, calls to open an object and to mark the object as read may be delayed and transmitted with a call to read data from the object.

The technique according to Shakib intends to reduce the number of requests transmitted from the client to the server. This reduction provides increased throughput for the client by eliminating delays associated with the transmission of calls for which no response (or no immediate response) is necessary. Furthermore, the reduction in the number of requests also reduces the amount of information that needs to be transmitted between the client and the server. This results in reduced bandwidth requirements between the client and the server. Bundling, for example, three calls into a single request eliminates the transmission overhead associated with two of the calls.

The Action, however, does not show that Shakib discloses exactly the missing claimed features, but still maintains that all of the claimed features would have been obvious for a person skilled in the art. However, Applicants respectfully submit that it is doubtful whether a skilled person would be motivated to amend a completely self-contained system, such as Wei's, by adding new features that need to be successfully implemented therein.

As for the missing optimization layer at the client end and its purpose to carry out client-end optimization, the Action refers to Shakib, which supposedly teaches an

RPC handler layer that bundles client RPC calls. Based on this, the Action asserts that it would have been obvious to one of ordinary skill in the art to combine the teachings of Shakib for bundling RPCs with Wei. The teachings of Shakib, when implemented in the Wei system, would supposedly allow one of ordinary skill in the art to use generic client and server stubs while bundling RPCs. Applicants respectfully disagree.

Applicants' claims specify, *inter alia*, "an optimization layer being implemented at the client end in addition to the other local proxies, and being designed to carry out client-end optimization and to combine call groups and, furthermore, with a general proxy being installed, which is designed to carry out grouped service calls, and to return response messages to the optimization layer."

As mentioned above, while one of ordinary skill in the art could arguably be motivated to use the teachings of Shakib with the Wei system in order to reduce traffic by eliminating redundant RPCs, the proposed claim construction using Wei and Shakib does not address all of Applicants' claimed features. Additionally, Applicants respectfully submit that it is doubtful whether all of the intended elements from Shakib work with the Wei system to create a combination that works as claimed. Applicants believe that in no case it is plausible to take only the missing feature, i.e., the optimization layer at the client end and its purpose to carry out client-end optimization, which is said to be disclosed in Shakib, and to combine it with the teaching of Wei.

Again, each reference provides a complete teaching that does not need any modification from another reference. And, it does not make sense to split a complete teaching only with regard to this specific feature - in this case, the optimization layer

being implemented at the client end, in addition to the other local proxies, and being designed to carry out client-end optimization and to combine call groups - in order to use this feature to supply a missing piece.

Furthermore, there remains the question why a skilled artisan would act according to the Examiner's allegation since the outcome of the modification with this feature would not be evident with regard to the reliability of the total system.

As for previously presented claim 2, the reasoning in the Action that the Wei/Shakib combination teaches an optimization layer containing at least one cache fails to point to any substantive evidence upon which to base that assertion. The reliance in the Action on inherency falls far short of the specificity required to support even a rejection based on supposedly inherent characteristics. Furthermore, Applicants again respectfully submit that such an artificial combination of two different teachings would not be feasible due to the mutual incompatibilities of the systems of Wei and Shakib.

Accordingly, new claims 9 and 12 are patentable over the cited references. This logic also disposes of the rejections of the remaining claims, which depend from claims 9 or 12.

Conclusion

For the foregoing reasons, Applicants respectfully submit that this application is in immediate condition for allowance and all pending claims are patentably distinct from the cited references. Reconsideration and allowance of all pending claims are respectfully requested.

In the event that there are any questions about this application, the Examiner is requested to telephone Applicants' undersigned representative so that prosecution of the application may be expedited.

If additional fees are required for any reason, please charge Deposit Account No. 02-4800 the necessary amount.

Respectfully submitted,

BUCHANAN INGERSOLL & ROONEY PC

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Attachment

Clean copy of amended Abstract

Replacement sheets for Figures 1-3